Claims:

1. A tissue replacement structure,
characterized in that the structure comprises

(a) a preformed three-dimensional tissue which can be produced by obtaining cells from a human or animal organism and culturing them in a stationary fashion as a suspension culture in cell culture vessels with hydrophobic surface and tapering bottom until a cell aggregate is formed which has differentiated cells embedded therein and has an outer region wherein cells capable of proliferation and migration are present;

(b) (i) an autologous cell suspension which can be produced from endogenous cells, with endogenous serum being added, with no addition of growth-promoting compounds, (ii) implants or support materials and/or (iii) growth factors;

and/or

(c) can be obtained by exposure of the tissue according to (a) to electromagnetic fields, mechanical stimulation and/or ultrasound.

2. The tissue replacement structure according to claim 1,
characterized in that
the tissue replacement structure is a cartilage replacement structure, said tissue cell suspension being a cartilage cell suspension, said three-dimensional tissue being a cartilage tissue, with

cartilage cells, bone cells and/or mesenchymal stem cells being obtained from said organism, and said cell aggregate containing at least 40% by volume of extracellular matrix.

3. The tissue replacement structure according to claim 1 or 2,
characterized in that
the structure is a replacement structure for muscle tissue, bone tissue, connective tissue, skin tissue, fat tissue, nervous tissue, liver tissue, endothelial and/or epithelial tissue, particularly a cardiac smooth muscle tissue replacement structure.

4. A tissue replacement structure selected from the group comprising muscle, connective, skin, fat, nervous, liver tissues, endothelia, epithelia, and/or stem cells,
characterized in that
the structure can be produced by obtaining cells from a human or animal organism and culturing them in a stationary fashion as a suspension culture in cell culture vessels with hydrophobic surface and tapering bottom until a cell aggregate is formed which has differentiated cells embedded therein and has an outer region wherein cells capable of proliferation and migration are present.

5. A method for the modification of a tissue lesion,
characterized in that

(a) a preformed three-dimensional tissue which can be produced by obtaining cells from a human or animal organism and culturing them in a stationary fashion as a suspension culture in cell culture vessels with hydrophobic surface and tapering bottom until

a cell aggregate is formed which has differentiated cells embedded therein and has an outer region wherein cells capable of proliferation and migration are present;

and

(b) an autologous cell suspension which can be produced from endogenous cells, with addition of endogenous serum and without adding growth-promoting compounds,

are incorporated in the tissue lesion

and/or

(c) exposure of the tissue according to (a) to electromagnetic fields, mechanical stimulation and/or ultrasound is effected.

6. The method according to claim 5,
characterized in that
the tissue lesion is a bone, cartilage and/or muscle lesion.

7. The method according to claim 6,
characterized in that
in said modification of a cartilage lesion, a cartilage cell suspension is produced as cell suspension, a cartilage tissue is produced as three-dimensional tissue, with cartilage cells, bone cells and/or mesenchymal stem cells being obtained from the organism, and the cell aggregate including at least 40% by volume of extracellular matrix.

8. The method according to claim 7,

characterized in that
incorporation of the cartilage cell suspension and cartilage tissue is followed by covering the lesion with a membrane.

9. Use of cartilage cells, muscle cells, bone cells, and/or mesenchymal stem cells, which cells are obtained from a human or animal organism and cultured in a stationary fashion as a suspension culture in cell culture vessels with hydrophobic surface and tapering bottom until a cell aggregate is formed which has differentiated cells embedded therein and has an outer region wherein cells capable of proliferation and migration are present, as a source of intracellular messenger substances, structural, scaffold and/or matrix components.

10. The use according to claim 9,
characterized in that
the intracellular messenger substances are growth factors and/or cytokines.

11. The use according to claim 9 or 10, which use is *in vivo* or *in vitro*.

12. Use of a tissue replacement structure according to any of claims 1 to 4 in the treatment of a tissue lesion.

13. The use according to claim 12,
characterized in that
the tissue lesion is a cartilage, bone and/or muscle lesion.

14. Use of a tissue replacement structure according to any of claims 1 to 4 as an *in vitro* or *in vivo* test system, particularly in screening of active substances.

15. A kit, comprising at least one tissue replacement structure according to any of claims 1 to 4, optionally together with information on combining the contents of the kit.